

FACT SHEET

For More information Contact: MED-26 at 202-762-0472

Naval Medical Research Center **Silver Spring, MD**



NMRC Laboratory Structure

Naval Medical Research Center, Silver Spring, MD
U.S. Naval Medical Research Unit No. 2, Jakarta, Indonesia
U.S. Naval Medical Research Unit No. 3, Cairo, Egypt
NMRC Detachment, Lima, Peru
Naval Dental Research Institute, Great Lakes, IL

The Naval Medical Research Center (NMRC), located at Silver Spring, MD, conducts biomedical research in infectious diseases, biological defense, immunobiology/tissue transplantation, wound repair, diving and environmental physiology, bone marrow research, blood research and human performance.

Combat Casualty Care Research

- Decompression
- Oxygen Toxicity
- Environmental Stress
- Transplantation & Autoimmunity (with NIH)
- Resuscitative Medicine
- Transfusion & Cryopreservation

Infectious Diseases Research

- Enterics Diseases
- Infectious Disease Threat Assessment
- Malaria
- Viral & Rickettsial Diseases

Biological Defense Research

- Rapid Diagnostics & Detection
- Recombinant Antibody Research
- Forward Deployable Laboratory Support
- Training and Rapid Response Support

Bone Marrow Research

- Researchers are developing contingency support for casualties with marrow toxic injury due to radiation or chemical warfare agents
- Development of improved HLA typing methods

Highlights of NMRC Research Efforts

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| • Determined Norwalk virus is a major mission-abortive infectious disease threat | • Biosensor-linked PCR assays to identify BW agents | • Determined the threat of hepatitis C and E infections among military populations |
| • World leader in Malaria Genomics | • Tested 30% DEET face paint | • Developed technique for adapting hollow fiber technology in blood cell separation |
| • World leader in DNA vaccine technology | • Hand-held assay to identify BW threat agents | • Identified the role of endothelin in vasoconstriction and reperfusion injury |
| • Oral Campylobacter vaccine | • Probability-based US Navy decompression dive tables | • Non-freezing cold injury pathology model |
| • Dengue and scrub typhus diagnostic assays | • Special Forces Command Diving Planner | • Pre-clinical trial demonstrating that the rejection of mismatched organs can be prevented |
| • Evaluated enterotoxin <i>E. coli</i> vaccine | • Neuronal-tissue culture that seizes with exposure to 100% oxygen | • Navy patented system to grow hematopoietic stem cells outside the body |

Visit NMRC's web site at: <http://www.nmrc.navy.mil>

NMRC Subordinate Laboratories

U.S. Naval Medical Research Unit 2

Scientists conduct infectious disease research and surveillance and response activities to enhance the health, safety and readiness of Navy and Marine Corps personnel in Southeast Asia. The laboratory supports operational readiness for deployed forces in the Indian Ocean/Western Pacific region against infectious diseases with mission abortive potential. Research focuses on emerging diseases, viral diseases, parasitic diseases and enteric and bacterial diseases.

<http://www.namru2.go.id>

U.S. Naval Medical Research Unit 3

Scientists conduct infectious disease research, surveillance, and response activities to enhance the health, safety and readiness of DoD personnel in Southwest Asia and Northeast Africa. Research includes the evaluation of vaccines, therapeutic agents, diagnostic assays, and vector control measures.

<http://www.namru3-cairo.org/>

Naval Medical Research Center Detachment

Scientists conduct infectious disease research and surveillance and response activities to enhance the health, safety, and readiness of military personnel in Central and South America particularly infectious disease threats. Researchers determine the most effective means of prevention, diagnosis and treatment of those disease threats, and develop collaborations with the medical institutions in Peru, the host country, as well as Bolivia, Ecuador and Brazil.

<http://www.nmrc.navy.mil>

Naval Dental Research Institute

Scientists conduct research, development, testing, and evaluation of new methods and materials that limit oral disease, reduce dental emergencies, maximize operational dental readiness, and promote dental wellness. Located with the US Army Dental Research Detachment, this is the only DoD facility dedicated to combat dentistry and oral disease research. In the past four years, four patents have been awarded for research products from NDRI, and another 10 are in various stages of the application process.

<http://bumed.med.navy.mil/ndri/>

Examples of Research Efforts

Jakarta, Indonesia

- WHO collaborating center for emerging diseases
- Evaluated a multiple PCR assay for Campylobacter, ETEC, and Shigella during Cobra Gold exercises
- Demonstrated safety and efficacy of daily Primaquine to prevent malaria
- Conducted two year study of dengue hemorrhagic fever
- Supports JTF-FA in Indochina, Cobra Gold and other military exercises
- International center for assessing immune responses to malaria and testing antimalarial drugs and vaccines

Cairo, Egypt

- Conducted phase 2 & 3 field trials of killed, oral vaccine against enterotoxigenic E. coli (ETEC)
- Provided support for Operation Bright Star identifying bacterial and parasitic pathogens, determining antibiotic susceptibilities of clinical isolates and doing entomological surveys
- WHO Collaborating Center for AIDS
- Determined the susceptibility of sand flies to various insecticides
- Conducted successful major field trial of new drug, Tafenaquine, for the prevention of malaria
- Determined causative agents and risk factors of an acute gastroenteritis outbreak in Incirlik Air Force Base in Turkey

Lima, Peru

- Documented the emergence of dengue fever as a major cause of morbidity in Peru
- Documented the largest outbreak of yellow fever ever recorded in Peru
- International center for testing malaria vaccines in monkeys
- Multi-country bacterial resistance surveillance studies
- Field testing of personal protective measures against vectors

Great Lakes, IL

- Salivary rapid diagnosis and surveillance of infectious diseases of military importance
- Mercury removal from dental wastewater
- Rapid microbial protease assay and dental caries risk assessment tests
- Computer-assisted diagnosis and treatment of dental conditions by independent duty corpsmen
- Far-forward dental materials and delivery systems for initial casualty care
- Monitor dental emergency incidence and treatment needs in deployed, combat environments afloat and ashore